328555(28)

B. E. (Fifth Semester) Examination, April-May/ Nov.-Dec. 2020

(New Scheme)

(ET&T Engg. Branch)

ADVANCED MICROPROCESSOR and INTERFACING

Time Allowed : Three hours

Maximum Marks : 80

Minimum Pass Marks : 28

Note : Attempt all questions. Part (a) of each question is compulsory. Attempt any two parts from (b), (c) and (d) of each unit.

Unit-I

1. (a) Compare 8085 μP & 8086 μP. 2

(b) Explain the Pipeline Architecture of 8086 μP with its register organization. 7

(c) Explain the following Pins of 8086 µP.   7

    (i) $\overline{Rq}/\overline{gt_0}$, $\overline{Rq}/\overline{gt_1}$

    (ii) $\overline{S}_0$, $\overline{S}_1$, $\overline{S}_2$

    (iii) QS_0 & QS_1

(d) Explain the 8087 NDP co-processor in detail.   7

Unit-II

2. (a) Define REP prefix.   2

(b) Explain the Addressing Modes with suitable example.   7

(c) Write a program to find out the largest number from an unordered array of 16-8 bit number stored sequentially in the memory location starting at offset 0500H in the segment 2000H.   7

(d) Explain Interrupts of 8086 in detail with IUT structure.   7

Unit-III

3. (a) Compare 8259 & 8259 A.   2

(b) Interface two 4 K × 8 EPROMS and two 4 K × 8 RAM chips with 8086. Select suitable maps.   7

(c) Interfrace pgrammable timer 8254 and 8086 µP at an address 0040H for counter 0 and write an ALP to generate a square wave of period of 1 ms. The 8086 and 8254 run at 6 MHz and 1·5 MHz respectively.   7

(d) Explain 8257 DMA controller in detail with suitable block diagram.   7

Unit-IV

4. (a) Define 8279 (Keyboard & Display Driver) in short.   2

(b) Interface ADC08086 with 8086 µP using 8255 ports use Port A of 8255 for transferring digital data output of ADC to the CPU and Port C for control signals. Assume that an analog input in present at the i/P_2 of the ADC and a clock input of suitable frequency is available for ADC. Draw the schematic and write required ALP.   7

(c) Design a stepper motor controller and write an ALP to rotate shaft of a 4-phase stepper motor.   7

    (i) in clockwise 5 rotation.

    (ii) in anti-clockwise 5 rotations.

(d) Interface LCD with 8086 µP with suitable diagram. 7

Unit-V

5. (a) Compare 80386 µP & 80486 µP. 2

(b) Explain the architecture of 80386 µP with suitable diagram. 7

(c) Explain special registers of 80386 µP in detail. 7

(d) What do you mean by Paging? Explain in detail. 7